CHAPTER 10

DATA ENTRY AND TRANSMISSION

A. INTRODUCTION

To meet the requirements for reporting OASIS data, and to make OASIS data and reports available to your agency for quality improvement and other administrative functions, internal agency systems are needed for computerization of OASIS data and for transmitting electronic data to the agency in your state designated by CMS. This chapter describes agency activities and decisions necessary to implement these computerization activities. A checklist for these agency-level activities is included as an attachment to this chapter.

B. ESTABLISHING AN OASIS DATA ENTRY SYSTEM

Setting up a data entry system for OASIS first requires that choices be made on a number of key questions. Who will have responsibility for data entry? What software will you use? Can you use existing computer equipment or must you purchase additional hardware? How will paper flow be organized, and who will be responsible for making sure that forms are routed properly? Who will be responsible for data completeness and consistency, and for making sure that corrections are made? Who will be responsible for data transmission? What are your agency's needs for staff training? These questions cannot be answered in isolation. The OASIS data entry and data transmission system interacts with other agency systems at multiple points, as indicated in Chapters 5 and 9. Planning for an OASIS data entry system must take into account other automated systems already in place for billing or other functions. Automation must be coordinated with form design and the data collection process, as well as with the agency's clinical record handling and storage systems.

If your agency already uses a point of service clinical documentation system or a system incorporating scannable forms, or if you have plans to purchase either of these types of systems, the automation process will be considerably different than if you use the more traditional approach of data entry from paper forms. In the point of service or scannable form approaches, forms design and data entry considerations are folded into one process, greatly simplifying those implementation steps. However, other issues need to be addressed, such as hardware requirements, communication between field staff and your central office, ensuring data entry and transmission of all Medicare and Medicaid (skilled care) patient data, and backup systems in case of hardware or software failures.

1. First Steps: Choosing Among Data Capture Options

CMS has made available to home care agencies data entry software (HAVEN) that can be used to electronically encode OASIS data collected using paper assessment forms. However, agencies have other options for encoding data, which include purchasing data entry products other than HAVEN, point of service clinical documentation systems, scannable paper forms, or contracting with a service bureau to provide data entry or data submission services.

If your agency already has a system in place for computerizing clinical information, then your most important task will be to make sure that the product you are using is compliant with CMS requirements. If the vendor is unable to comply, then it may be necessary to use a temporary alternative, such as paper forms and manual data entry using HAVEN.

If your agency is one of the majority of agencies that do not already have an automated clinical documentation system in place, then you must decide which of the alternatives for encoding OASIS data are worth considering for your agency. Agency attributes such as size, affiliation, availability of funds to invest in equipment and software, and in-house technical expertise should all factor into the decision. The correct solution for one agency could well be inappropriate for another, and it may be necessary to adopt one strategy for initial implementation and another strategy for the long term. Your agency may have established procedures for making decisions of this kind and may have specialists on staff. If not, it will be necessary to establish procedures and determine decision-making authority as a first step.

2. Information Gathering

You should first identify agency staff to be involved in making a decision on software. Who should be in charge of investigating vendors and gathering information needed to make a decision? Who approves the purchase? Which staff will be involved in defining agency needs and preferences? The type of software to be purchased will determine who needs to be involved in this process. Defining agency needs and preferences for a point of service electronic clinical documentation system will necessarily involve a broader range of agency staff (particularly clinicians), as virtually all aspects of agency operations will be impacted by the decision. If you are contemplating purchase of an OASIS data entry, editing, and tracking system to be used with paper forms, fewer clinical staff will probably need to be involved in this process.

The information gathering process provides the foundation for making a sound decision. You will need to learn about what software should and can do. You should be familiar with CMS data collection and data submission requirements,

so that you will be able to knowledgeably evaluate vendor assurances of compliance with CMS requirements. In addition, computerization guidelines are included in Appendix F of this manual to provide (1) operational interpretations of CMS requirements, and (2) evaluation criteria that go beyond the minimum standards for CMS compliance. You should seek out reviews of home health software in industry publications, to learn about vendors and products. Obtain information from vendors, both directly and by browsing vendor web sites. Perhaps most importantly, seek out colleagues who have experience using specific products.

3. Criteria for Evaluation of Options

When evaluating a specific approach or specific product, the first question to ask is, does it enable the home care agency to comply with CMS requirements? Is the most current version of OASIS incorporated into the product under consideration? Does the system provide the capability for applying range and consistency checks to the data? Are data entry dates tracked properly? Can the system comply with the requirement that records be locked (preventing subsequent editing) and that lock dates be recorded and reported? Can data be exported in the format specified by CMS? Will the system be adaptable to meet the requirements to mask patient identifiers for non-Medicare/Medicaid patients? If you are considering a point of service system, does it meet the additional standard of incorporation of OASIS in its exact form?

Once you have determined that you can meet the minimum CMS requirements, then you should determine which products allow your agency to implement OASIS in a more effective and efficient way, providing the greatest utility to your agency at the least expenditure of time and other resources. The data capture option selected should be compatible with your agency's assessment forms. There is no regulatory requirement that OASIS items be incorporated into your assessment forms in the sequence in which they appear in the OASIS document. However, you should make sure that the sequence of OASIS data items in your assessment forms matches the sequence imposed by whatever data entry tool you choose to use. Ideally, the assessment form should be designed for the convenience of your clinical staff, and data entry software would be adapted to suit the form. In reality, the form may need to be adapted to suit the software, although some software products (HAVEN included) allow limited flexibility in the sequencing of OASIS items within the assessment form.

Data tracking and data management capabilities are important considerations in evaluating data entry options. Tracking functions include record locking and time stamping requirements as specified in CMS' OASIS data reporting regulation (also described in the OASIS Data Submission Specifications on the CMS web site), verification of key patient identifier information for new assessments against

previous assessments, generation of reports for missing or late assessments, production of reminders for upcoming assessments, and enforcing assessment sequencing.[1] In addition to basic tracking features, the ability to produce user-defined reports is also valuable. A flexible report generation capability can substantially reduce the burden associated with managing data collection, data entry, and data submission. If, however, the product that best meets your needs in other ways is lacking in this respect, all may not be lost. If the underlying database in which OASIS data are stored is a standard format, then it may be relatively easy to use a readily available software package to produce reports directly from the database. HAVEN, for example, uses a Microsoft Access™ database format, which is compatible with a variety of commercial software products that can be used for report generation or data analysis.

Other factors to consider in making decisions about what approach to adopt and which product to select include compatibility with existing systems at your agency, availability of technical support, and, of course, cost. It will naturally be easier to implement OASIS if the same systems you use to track referrals, make staffing assignments, and bill for services can incorporate OASIS data entry and data management as well. If true integration is not feasible, then it would be advantageous to be able to exchange data to avoid duplication of data entry. If, for example, the computer system you use to process new referrals can export data that can be imported into the software used for OASIS data entry, then your staff will be able to avoid having to re-enter patient identification information. Availability and quality of technical support is always an important consideration when implementing an unfamiliar and perhaps new product. Last but not least, cost and time required to implement should factor into your decision.

4. Implementation Task Plan

Once you have made the choice of a data entry approach and perhaps have selected a specific product or set of products, there are still a number of planning steps that must be accomplished. These include estimating staffing requirements for both initial implementation and steady-state needs, assigning responsibilities for data entry, data management, and data submission tasks, setting up a plan for software and hardware acquisition, and providing for staff training. Data entry staffing needs will vary greatly from one agency to another, depending upon agency size, type of patients, and choice of data entry system. The data entry task by itself will require about five to ten minutes per assessment, with start/resumption of care requiring the most time, follow-ups and noninpatient

[1] For example, a discharge assessment should only occur after a start of care assessment and should be followed only by another start of care. The data entry software may enforce assessment sequencing by rejecting an attempt to enter an assessment out of sequence, or a warning report may be issued when sequencing rules are violated.

discharges somewhat less, and transfers to an inpatient facility substantially less. The number of assessments for Medicare patients averages approximately two and one-half, i.e., a start of care and discharge for virtually all patients, plus one or more recertification follow-ups for a proportion of patients, averaging about one-half additional assessment per patient. Time required for editing and correcting data, data tracking, and data management activities will vary considerably from one agency to another, and will depend to a substantial extent upon how well your staff as a whole understand the data reporting requirements and the importance of complete and consistent data. The data submission process should require very little time in itself, but responding to validation reports may be more time consuming. Procedures for these tasks will need to be established early in the implementation process. The first weeks and months of data collection will be a time of testing these procedures and refining them to make the entire process of data collection, encoding, and submission as efficient as possible.

C. IMPLEMENTING OASIS COMPUTERIZATION

The checklist provided at the end of this chapter lists steps that may be needed to implement OASIS computerization in your agency. While these steps are typical, the checklist may require customization for individual agencies. It is very important to include testing, training, and pilot testing in your implementation activities. Software may not work correctly when first installed. Agency staff may experience some confusion concerning regulatory requirements, protocols, and procedures. Bugs will require working out. Among the tasks included in the checklist, some deserve special note.

Remember that in addition to data entry software (and hardware), you need to have certain equipment and software for data transmission. The requirements are listed in the *Outcome and ASsessment Information Set (OASIS) National Automation Project: Home Health Agency System User's Guide* and on the OASIS web site. The equipment may be the same as that used for data entry. Your agency may already have the software needed for data transmission, it may be included with your data entry software, or you may need to acquire additional software. Someone will need to install and test any new hardware and software needed. Data entry staff will require training in the use of the data entry software, but most importantly they should become familiar with your agency's assessment forms so that they will be able to enter the data accurately and efficiently. Training in your agency's procedures for handling patient records,

correcting data problems, and enforcing information privacy[2] will also be required.

Once you have set up a system for data entry and data transmission, pilot testing is extremely important. All procedures should be pilot tested, from the initial completion of assessment forms to the submission of data to the State OASIS system. Procedures require fine tuning during and after this pilot testing period. Once implementation of OASIS data entry and data transmission is complete, the procedures should become a routine part of your agency's operations. This does not mean that procedures will remain static. You should be continuously refining procedures, exercising quality control, and improving the efficiency of your OASIS data submission systems.

[2] If this is your agency's first experience with computerization of patient-specific clinical information, your staff may require orientation to the legal requirements and technical means for safeguarding individual data in electronic form. Procedures for ensuring protection of confidential information may include a combination of physical (keeping computers behind locked doors) and technical (password protection) measures.

FREQUENTLY ASKED QUESTIONS

1. Are home health agencies required to use HAVEN for data submission?

An agency may use HAVEN or any other data entry software that meets the requirements included in the OASIS Data Submission Specifications published on the CMS OASIS web site.

2. What software vendors have been approved by CMS?

CMS has no testing or endorsement program for vendors. It is your agency's responsibility to ensure that the product or service you use complies with regulations and conforms to CMS' data specifications.

3. I can't afford to provide each of my clinical staff with a laptop computer to collect OASIS data. How will we be able to transmit the data?

Point of service data collection is only one of several computerization options, including data entry from paper forms, optical scanning, or contracting with an outside service. You must decide which option is most cost effective for your own agency.

4. How does HAVEN interface with other Public Health applications a home health agency may already be running?

HAVEN is a stand alone software program designed solely for the purpose of creating files of OASIS data to transmit to the State survey agency. This involves using some type of communication software like Netscape Communicator. The system that the State survey agency uses to receive the OASIS data may involve the same hardware system used to house other Public Health applications (like the Minimum Data Set used in long-term care facilities); however, software will be different.

FREQUENTLY ASKED QUESTIONS

5. Does HAVEN perform error checking during data entry or during file generation and submission?

HAVEN performs basic validation checks on completion of data entry. At the end of data entry, HAVEN alerts the user to data that are missing or inconsistent so that the data can be reconciled. The software housed on the computer system in the State survey agency will review and validate OASIS files submitted to them via the agency's communication software, i.e., Netscape. During transmission to the State survey agency, the HHA is notified as to the status of its submission, i.e., file structure and data content. The State OASIS system generates two types of validation reports - an Initial Feedback Report and a Final Validation Report. The Initial Feedback Report is generated while the sender is online during submission. This report indicates that the State OASIS system has performed basic validation checks of the file and whether the file has been accepted or rejected. If rejected, the report will include the rejection error. The Final Validation Report is generated within 24 hours of file submission. This report is created after the State OASIS system performs data validation, timing checks, sequence checks, and calculated element validations. This report details the type and number of errors encountered in the file. The reports are accessed from the OASIS State System page using browser software such as Netscape. More detail on these system reports is available in the State System Manual that has been posted on the OASIS web site.

FREQUENTLY ASKED QUESTIONS

6. When a patient is admitted to an inpatient facility, we routinely discharge the patient from our agency. We entered a start of care assessment (M0100 Reason for Assessment 1) and transfer to inpatient facility assessment (M0100 Reason for Assessment 7) into HAVEN. In a week, the patient returned home and was readmitted to home health care. We are unable to enter a new start of care assessment for this patient. What can we do?

The most likely cause of this problem is that assessments were entered into HAVEN out of sequence. In this example, the sequence of assessments is start of care, transfer to inpatient facility, and a second start of care. If the transfer to inpatient facility assessment (M0100 Reason for Assessment 6 or 7) is entered before the first start of care assessment, then HAVEN will not allow a second start of care to be entered, because it would violate record sequencing rules. Because HAVEN enforces record sequencing rules according to the sequence in which records are entered rather than by the effective date of the assessments, it is vitally important that you encode assessments in the sequence in which they occurred. Unfortunately, the only ready solution to this problem is to delete the assessment records from HAVEN and re-enter them.

7. We had a patient that we visited on April 15 and the physician called on April 19 to say no more visits were needed. When we enter the discharge assessment (M0100 Reason for Assessment 9) into HAVEN, we get the following message:

> ***"WARNING: Difference between M0090_INFO_COMPLETED_DT (04/19/1999) and M0906_DC_TRAN_DTH_DT (04/15/1999) should be no more than 2 days (4)."***

This message is intended as a reminder that you should complete discharge assessments within 48 hours. The warning will not prevent the assessment from being locked and transmitted. If you find that this warning occurs consistently, you may want to examine whether your staff are appropriately tracking the status of patients under their care.

FREQUENTLY ASKED QUESTIONS

8. How do I handle a situation in HAVEN where a patient's ID number (M0020_PAT_ID) changes between episodes of care?

This may occur when an HHA must assign a new patient ID for their own purposes. The following are recommended guidelines to follow when updating M0020_PAT_ID or other data found on the "Maintain Patient Database" screen.

a. Make sure all records for one episode are entered, locked, and exported before entering any assessments for a second episode.

b. When entering the SOC assessment for the second episode of care, first use the Maintain Patient Database tool to change the Patient ID to the appropriate value for the new episode of care. Then enter the new SOC assessment.

c. If it is necessary to make a correction to an assessment for a previous episode of care for which the patient ID is different than the current patient ID for the same patient, make sure that when you open the assessment for corrections, you answer "no" when prompted to update the assessment to reflect changes in patient information.

FREQUENTLY ASKED QUESTIONS

9. Regarding the time frame for OASIS data entry, the Federal Register stated that the start of care assessment must be completed within five days and the encoding and finalizing of the data entry (lock) within seven days of completing the OASIS data set. Does the seven days start from the date that is recorded in OASIS question M0090 (Date Assessment Completed)? Is the date assessment completed the day of that initial visit when the service provider obtains their information (start of care date) or is it the day the clerical staff complete the ICD codes which could be a day or two later?

For all types of assessments (start of care, follow-up, discharge, etc.), the time frame during which encoding, editing, and locking must occur is seven calendar days from the completion of the assessment (i.e., M0090 - Date assessment completed). The comprehensive assessment must be conducted by a qualified clinician in conjunction with a home visit. With one exception, the date assessment completed should match the date of the visit during which the assessment was performed. The only exception is when a patient is transferred to an inpatient facility or otherwise discharged without advance notice, in which case M0090 should reflect the date the agency learns of the inpatient admission or discharge. The encoding and editing of data (which must be completed within seven days) includes ICD coding, data entry, review of data for completeness and consistency, and resolution of any data problems prior to locking the data record in preparation for transmission. A record is locked when it is considered final and ready for transmission to the State.

ATTACHMENT A TO CHAPTER 10

CHECKLIST FOR OASIS COMPUTERIZATION ACTIVITIES

1. Planning/Decision Steps

Gather information to decide among data capture methods and products.

(1) Traditional data entry using paper forms

- (a) HAVEN ☐
- (b) Other data entry software ☐
- (c) Contract with data entry service ☐

(2) Optical scanning

- (a) Specific software products ☐
- (b) Hardware systems ☐
- (c) Contract with scanning service ☐

(3) Point of service documentation system

- (a) Specific software products ☐
- (b) Hardware systems ☐

Evaluate options and make decision, applying evaluation criteria:

- (1) Compliance with CMS specifications ☐
- (2) Compatibility with assessment forms ☐
- (3) Compatibility/integration with existing systems ☐
- (4) Adequacy of tracking and data management ☐
- (5) Time required for implementation ☐
- (6) Cost-effectiveness ☐
- (7) Availability of technical support ☐

Estimate staffing requirements

- (1) Startup activities ☐
- (2) Steady-state needs ☐

Determine responsibilities for:

(1) Data entry ☐

(2) Management of clinical database ☐

(3) Data submission ☐

(4) Equipment acquisition/management ☐

(5) Quality control ☐

(6) Training ☐

2. Implementation Steps

Software acquisition, if applicable

(1) Data entry software ☐

(2) Data transmission software ☐

Hardware acquisition, if necessary

(1) Data entry workstation(s) ☐

(2) Data transmission workstation (if different from data entry workstation) with modem and phone connection ☐

(3) Other hardware if necessary ☐

Installation of software (and hardware, if necessary) ☐

Agency staff training

(1) Software training ☐

(2) Training with agency forms ☐

(3) Paperwork flow and problem resolution procedures ☐

(4) Data transmission procedures ☐

Pilot test software and procedures

(1) Data entry testing ☐

(2) Data submission testing (submit test batch to State) ☐

Go "live" with computerization of OASIS data

(1) Begin data entry ☐

(2) Transmit first batch of required OASIS data ☐

3. Ongoing Data Entry, Data Submission and Quality Control

Routine data entry, tracking and monitoring ☐

Routine data submission, ongoing monitoring of validation reports from State agency ☐

Additional quality control activities ☐